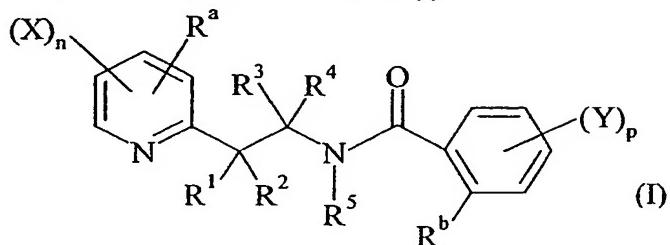


CLAIMS

5        1. A compound of general formula (I) :



in which :

- n is 1, 2, or 3;
- p is 1, 2, 3 or 4;
- R<sup>a</sup> is a C<sub>1</sub>-C<sub>6</sub>-halogenoalkyl having 1 to 5 halogen atoms;

10        - each substituent X is chosen, independently of the others, as being a hydrogen atom, a halogen atom, a C<sub>1</sub>-C<sub>6</sub>-alkyl or a C<sub>1</sub>-C<sub>6</sub>-halogenoalkyl;

15        - R<sup>1</sup> and R<sup>2</sup> are chosen independently of each other as being a hydrogen atom, a halogen atom, a cyano group, a hydroxy group, an amino group, a sulfanyl group, a formyl group, a formyloxy group, a formylamino group, a carboxy group, a carbamoyl group, a N-hydroxycarbamoyl group, a carbamate group, a (hydroxyimino)-C<sub>1</sub>-C<sub>6</sub>-alkyl group, a C<sub>1</sub>-C<sub>6</sub>-alkyl, a C<sub>2</sub>-C<sub>6</sub>-alkenyl, a C<sub>2</sub>-C<sub>6</sub>-alkynyl, a C<sub>1</sub>-C<sub>6</sub>-alkylamino, a di-C<sub>1</sub>-C<sub>6</sub>-alkylamino, a C<sub>1</sub>-C<sub>6</sub>-alkoxy, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkyl having 1 to 5 halogen atoms, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkoxy having 1 to 5 halogen atoms, a

20        C<sub>1</sub>-C<sub>6</sub>-alkylsulfanyl, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkylsulfanyl having 1 to 5 halogen atoms, a C<sub>2</sub>-C<sub>6</sub>-alkenyloxy, a C<sub>2</sub>-C<sub>6</sub>-halogenoalkenyloxy having 1 to 5 halogen atoms, a C<sub>3</sub>-C<sub>6</sub>-alkynyoxy, a C<sub>3</sub>-C<sub>6</sub>-halogenoalkynyoxy having 1 to 5 halogen atoms, a C<sub>3</sub>-C<sub>6</sub>-cycloalkyl, a C<sub>3</sub>-C<sub>6</sub>-halogenocycloalkyl having 1 to 5 halogen atoms, a C<sub>1</sub>-C<sub>6</sub>-alkylcarbonyl, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkylcarbonyl having 1 to 5 halogen atoms, a C<sub>1</sub>-C<sub>6</sub>-

25        alkylcarbamoyl, a di-C<sub>1</sub>-C<sub>6</sub>-alkylcarbamoyl, a N-C<sub>1</sub>-C<sub>6</sub>-alkyloxycarbamoyl, a C<sub>1</sub>-C<sub>6</sub>-alkoxycarbamoyl, a N-C<sub>1</sub>-C<sub>6</sub>-alkyl-C<sub>1</sub>-C<sub>6</sub>-alkoxycarbamoyl, a C<sub>1</sub>-C<sub>6</sub>-alkoxycarbonyl, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkoxycarbonyl having 1 to 5 halogen atoms, a C<sub>1</sub>-C<sub>6</sub>-alkylcarbonyloxy, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkylcarbonyloxy having 1 to 5 halogen atoms, a C<sub>1</sub>-C<sub>6</sub>-alkylcarbonylamino, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkylcarbonylamino having 1 to 5

30        halogen atoms, a C<sub>1</sub>-C<sub>6</sub>-alkylaminocarbonyloxy, a di-C<sub>1</sub>-C<sub>6</sub>-alkylaminocarbonyloxy, a C<sub>1</sub>-C<sub>6</sub>-alkyloxycarbonyloxy, a C<sub>1</sub>-C<sub>6</sub>-alkylsulphenyl, a C<sub>1</sub>-C<sub>6</sub>-

halogenoalkylsulphenyl having 1 to 5 halogen atoms, a C<sub>1</sub>-C<sub>6</sub>-alkylsulphanyl, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkylsulphanyl having 1 to 5 halogen atoms, a C<sub>1</sub>-C<sub>6</sub>-alkylsulphonyl, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkylsulphonyl having 1 to 5 halogen atoms, a benzyl, a benzyloxy, a benzylsulfanyl, a benzylsulfinyl, a benzylsulfonyl, a benzylamino, a phenoxy, a phenylsulfanyl, a phenylsulfinyl, a phenylsulfonyl, a phenylamino, a phenylcarbonylamino, a 2,6 dichlorophenyl-carbonylamino group or a phenyl group; or R<sup>1</sup> and R<sup>2</sup> may form together a cyclopropyl, a cyclobutyl, a cyclopentyl or a cyclohexyl;

- R<sup>3</sup> and R<sup>4</sup> are chosen independently of each other as being a hydrogen atom, a halogen atom, a cyano group, a hydroxy group, an amino group, a sulfanyl group, a formyl group, a carboxy group, a carbamoyl group, a N-hydroxycarbamoyl group, a carbamate group, a (hydroxyimino)-C<sub>1</sub>-C<sub>6</sub>-alkyl group, a C<sub>1</sub>-C<sub>6</sub>-alkyl, a C<sub>2</sub>-C<sub>6</sub>-alkenyl, a C<sub>2</sub>-C<sub>6</sub>-alkynyl, a C<sub>1</sub>-C<sub>6</sub>-alkylamino, a di-C<sub>1</sub>-C<sub>6</sub>-alkylamino, a C<sub>1</sub>-C<sub>6</sub>-alkoxy, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkyl having 1 to 5 halogen atoms, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkoxy having 1 to 5 halogen atoms, a C<sub>1</sub>-C<sub>6</sub>-alkylsulfanyl, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkylsulfanyl having 1 to 5 halogen atoms, a C<sub>2</sub>-C<sub>6</sub>-alkenyloxy, a C<sub>2</sub>-C<sub>6</sub>-halogenoalkenyloxy having 1 to 5 halogen atoms, a C<sub>3</sub>-C<sub>6</sub>-alkynyoxy, a C<sub>3</sub>-C<sub>6</sub>-halogenoalkynyoxy having 1 to 5 halogen atoms, a C<sub>3</sub>-C<sub>6</sub>-cycloalkyl, a C<sub>3</sub>-C<sub>6</sub>-halogenocycloalkyl having 1 to 5 halogen atoms, a C<sub>1</sub>-C<sub>6</sub>-alkylcarbonyl, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkylcarbonyl having 1 to 5 halogen atoms, a N-C<sub>1</sub>-C<sub>6</sub>-alkyloxycarbamoyl, a C<sub>1</sub>-C<sub>6</sub>-alkoxycarbamoyl, a N-C<sub>1</sub>-C<sub>6</sub>-alkyl-C<sub>1</sub>-C<sub>6</sub>-alkyloxycarbamoyl, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkyloxycarbonyl having 1 to 5 halogen atoms, a C<sub>1</sub>-C<sub>6</sub>-alkylcarbonyloxy, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkylcarbonyloxy having 1 to 5 halogen atoms, a C<sub>1</sub>-C<sub>6</sub>-alkylcarbonylamino, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkylcarbonylamino having 1 to 5 halogen atoms, a C<sub>1</sub>-C<sub>6</sub>-alkylaminocarbonyloxy, a di-C<sub>1</sub>-C<sub>6</sub>-alkylaminocarbonyloxy, a C<sub>1</sub>-C<sub>6</sub>-alkyloxycarbonyloxy, a C<sub>1</sub>-C<sub>6</sub>-alkylsulphenyl, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkylsulphenyl having 1 to 5 halogen atoms, a C<sub>1</sub>-C<sub>6</sub>-alkylsulphanyl, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkylsulphanyl having 1 to 5 halogen atoms, a benzyl, a benzyloxy, a benzylsulfanyl, a benzylsulfinyl, a benzylsulfonyl, a benzylamino, a phenoxy, a phenylsulfanyl, a phenylsulfinyl, a phenylsulfonyl, a phenylamino, a phenylcarbonylamino, a 2,6 dichlorophenyl-carbonylamino group or a phenyl group;

with the proviso that when three of the four substituents R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup> and R<sup>4</sup> are a hydrogen atom, then the fourth substituent is not a hydrogen atom;

- R<sup>5</sup> is chosen as being a hydrogen atom, a cyano group, a formyl group, a hydroxy group, a C<sub>1</sub>-C<sub>6</sub>-alkyl, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkyl having 1 to 5 halogen atoms, a

C<sub>1</sub>-C<sub>6</sub>-alkoxy, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkoxy having 1 to 5 halogen atoms, a C<sub>3</sub>-C<sub>6</sub>-halogenocycloalkyl having 1 to 5 halogen atoms, a C<sub>2</sub>-C<sub>6</sub>-alkenyl, a C<sub>2</sub>-C<sub>6</sub>-alkynyl, a C<sub>1</sub>-C<sub>6</sub>-alkoxy-C<sub>1</sub>-C<sub>6</sub>-alkyl, a C<sub>1</sub>-C<sub>6</sub>-cyanoalkyl, a C<sub>1</sub>-C<sub>6</sub>-aminoalkyl, a C<sub>1</sub>-C<sub>6</sub>-alkylamino-C<sub>1</sub>-C<sub>6</sub>-alkyl, a di-C<sub>1</sub>-C<sub>6</sub>-alkylamino-C<sub>1</sub>-C<sub>6</sub>-alkyl, a C<sub>1</sub>-C<sub>6</sub>-alkylcarbonyl,  
5 a C<sub>1</sub>-C<sub>6</sub>-halogenalkylcarbonyl having 1 to 5 halogen atoms, a C<sub>1</sub>-C<sub>6</sub>-alkyloxycarbonyl, a C<sub>3</sub>-C<sub>7</sub>-cycloalkyl, a C<sub>3</sub>-C<sub>7</sub>-halogenocycloalkyl having 1 to 5 halogen atoms, a C<sub>3</sub>-C<sub>7</sub>-cycloalkyl-C<sub>1</sub>-C<sub>6</sub>-alkyl, a C<sub>1</sub>-C<sub>6</sub>-benzyloxycarbonyl, a C<sub>1</sub>-C<sub>6</sub>-alkoxy-C<sub>1</sub>-C<sub>6</sub>-alkylcarbonyl, a C<sub>1</sub>-C<sub>6</sub>-alkylsulfonyl or a C<sub>1</sub>-C<sub>6</sub>-halogenoalkylsulfonyl having 1 to 5 halogen atoms;

10 - Y is the same or different and is a hydrogen atom, a halogen atom, a nitro group, a cyano group, a hydroxy group, an amino group, a sulfanyl group, a pentafluoro-λ<sup>6</sup>-sulfanyl group, a formyl group, a formyloxy group, a formylamino group, a carboxy group, a C<sub>1</sub>-C<sub>8</sub>-alkyl, a C<sub>1</sub>-C<sub>8</sub>-halogenoalkyl having 1 to 5 halogen atoms, a C<sub>2</sub>-C<sub>8</sub>-alkenyl, a C<sub>2</sub>-C<sub>8</sub>-alkynyl, a C<sub>1</sub>-C<sub>8</sub>-alkylamino, a di-C<sub>1</sub>-C<sub>8</sub>-alkylamino,  
15 a C<sub>1</sub>-C<sub>8</sub>-alkoxy, a C<sub>1</sub>-C<sub>8</sub>-halogenoalkoxy having 1 to 5 halogen atoms, a C<sub>1</sub>-C<sub>8</sub>-alkoxy-C<sub>2</sub>-C<sub>8</sub>-alkenyl, a C<sub>1</sub>-C<sub>8</sub>-alkylsulfanyl, a C<sub>1</sub>-C<sub>8</sub>-halogenoalkylsulfanyl having 1 to 5 halogen atoms, a C<sub>1</sub>-C<sub>8</sub>-alkoxycarbonyl, a C<sub>1</sub>-C<sub>8</sub>-halogenoalkoxycarbonyl having 1 to 5 halogen atoms, a C<sub>1</sub>-C<sub>8</sub>-alkylcarbonyloxy, a C<sub>1</sub>-C<sub>8</sub>-halogenoalkylcarbonyloxy having 1 to 5 halogen atoms, a C<sub>1</sub>-C<sub>8</sub>-alkylsulphenyl, a  
20 C<sub>1</sub>-C<sub>8</sub>-halogenoalkylsulphenyl having 1 to 5 halogen atoms, a C<sub>1</sub>-C<sub>8</sub>-alkylsulphanyl, a C<sub>1</sub>-C<sub>8</sub>-halogenoalkylsulphanyl having 1 to 5 halogen atoms, a C<sub>1</sub>-C<sub>8</sub>-alkylsulphonyl, a C<sub>1</sub>-C<sub>8</sub>-halogenoalkylsulphonyl having 1 to 5 halogen atoms or a C<sub>1</sub>-C<sub>8</sub>-alkylsulfonamide; and

25 - R<sup>b</sup> is a halogen atom, a nitro group, a cyano group, an amino group, a sulfanyl group, a pentafluoro-λ<sup>6</sup>-sulfanyl group, a formyl group, a formyloxy group, a formylamino group, a carboxy group, a C<sub>1</sub>-C<sub>6</sub>-alkyl, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkyl having 1 to 5 halogen atoms, a C<sub>2</sub>-C<sub>6</sub>-alkenyl, a C<sub>2</sub>-C<sub>6</sub>-alkynyl, a C<sub>1</sub>-C<sub>6</sub>-alkylamino, a di-C<sub>1</sub>-C<sub>6</sub>-alkylamino, a C<sub>1</sub>-C<sub>6</sub>-alkoxy, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkoxy having 1 to 5 halogen atoms, a C<sub>1</sub>-C<sub>6</sub>-alkoxy-C<sub>2</sub>-C<sub>6</sub>-alkenyl, a C<sub>1</sub>-C<sub>6</sub>-alkylsulfanyl, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkylsulfanyl having 1 to 5 halogen atoms, a C<sub>1</sub>-C<sub>6</sub>-alkylcarbonyl, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkoxycarbonyl having 1 to 5 halogen atoms, a C<sub>1</sub>-C<sub>6</sub>-alkylcarbonyloxy,  
30 a C<sub>1</sub>-C<sub>6</sub>-halogenoalkylcarbonyloxy having 1 to 5 halogen atoms, a C<sub>1</sub>-C<sub>6</sub>-alkylsulphenyl, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkylsulphenyl having 1 to 5 halogen atoms, a C<sub>1</sub>-C<sub>6</sub>-alkylsulphanyl, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkylsulphanyl having 1 to 5 halogen atoms, a C<sub>1</sub>-C<sub>6</sub>-alkylsulphonyl, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkylsulphonyl having 1 to 5 halogen atoms, a C<sub>1</sub>-C<sub>6</sub>-alkylsulfonamide;  
35 or a C<sub>1</sub>-C<sub>6</sub>-alkylsulfonamide;

as well as its salts, N-oxydes, metallic complexes, metalloidic complexes and optically active isomers.

2. A compound according to claim 1, characterised in that n is 1 or 2.

5

3. A compound according to claim 1 or 2, characterised in that X is a halogen atom.

10

4. A compound according to claim 3, characterised in that X is chlorine.

15

5. A compound according to any of the claims 1 to 4, characterised in that R<sup>a</sup> is -CF<sub>3</sub>.

15

6. A compound according to any of the claims 1 to 5, characterised in that the 2-pyridyl is substituted in 3- and/or in 5-position.

20

7. A compound according to claim 6, characterised in that the 2-pyridyl is substituted in 3-position by X and in 5-position by R<sup>a</sup>.

25

8. A compound according to any of the claims 1 to 7, characterised in that the 2-pyridyl is substituted in 3-position by -Cl and in 5-position by -CF<sub>3</sub>.

25

9. A compound according to any of the claims 1 to 8, characterised in that R<sup>b</sup> is a halogen atom, a C<sub>1</sub>-C<sub>6</sub>-alkyl, a C<sub>1</sub>-C<sub>6</sub>-alkoxy or a C<sub>1</sub>-C<sub>6</sub>-halogenoalkyl having 1 to 5 halogen atoms.

30

10. A compound according to any of the claims 1 to 9, characterised in that p is 1.

35

11. A compound according to any of the claims 1 to 10, characterised in that Y is a hydrogen atom, a halogen atom or a C<sub>1</sub>-C<sub>6</sub>-alkyl.

35

12. A compound according to any of the claims 1 to 11, characterised in that R<sup>1</sup> and R<sup>2</sup> are chosen, independently of each other, as being a hydrogen atom, a halogen atom, a cyano group, a hydroxy group, a C<sub>1</sub>-C<sub>6</sub>-alkyl, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkyl having 1 to 5 halogen atoms, a C<sub>2</sub>-C<sub>6</sub>-alkenyl, a C<sub>1</sub>-C<sub>6</sub>-alkoxy, a C<sub>1</sub>-C<sub>6</sub>-alkylsulfanyl, a C<sub>1</sub>-

C<sub>6</sub>-alkylsulfenyl, a C<sub>1</sub>-C<sub>6</sub>-alkylsulfinyl, a C<sub>1</sub>-C<sub>6</sub>-alkoxycarbonyl, a C<sub>1</sub>-C<sub>6</sub>-alkylcarbonylamino, a C<sub>1</sub>-C<sub>6</sub>-alkoxycarbonyloxy, a C<sub>1</sub>-C<sub>6</sub>-alkoxycarbonylamino or a phenyl group.

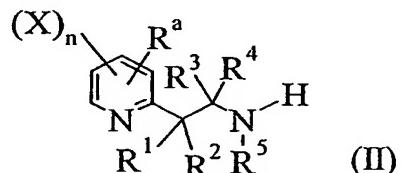
5      13. A compound according to claim 12, characterised in that R<sup>1</sup> and R<sup>2</sup> are chosen, independently of each other, as being a halogen atom, a C<sub>1</sub>-C<sub>6</sub>-alkyl, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkyl having 1 to 5 halogen atoms, a C<sub>1</sub>-C<sub>6</sub>-alkylcarbonylamino.

10     14. A compound according to any of the claims 1 to 13, characterised in that R<sup>3</sup> and R<sup>4</sup> are chosen, independently of each other, as being a hydrogen atom, a halogen atom, a cyano group, a C<sub>1</sub>-C<sub>6</sub>-alkyl, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkyl having 1 to 5 halogen atoms, a C<sub>1</sub>-C<sub>6</sub>-alkylcarbonylamino or a phenyl group.

15     15. A compound according to claim 14, characterised in that R<sup>3</sup> and R<sup>4</sup> are chosen, independently of each other, as being a halogen atom, a C<sub>1</sub>-C<sub>6</sub>-alkyl, a C<sub>1</sub>-C<sub>6</sub>-halogenoalkyl having 1 to 5 halogen atoms or a phenyl group.

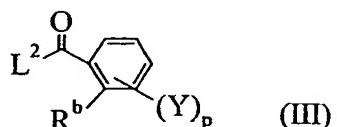
20     16. A compound according to any of the claims 1 to 13, characterised in that R<sup>5</sup> is a hydrogen atom or a C<sub>3</sub>-C<sub>7</sub>-cycloalkyl.

25     17. A process for the preparation of a compound of general formula (I) as defined in any of the claims 1 to 16, which comprises reacting a 2-pyridine derivative of general formula (II) or one of its salt :



in which X, n, R<sup>a</sup>, R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup> and R<sup>5</sup> are as in any of the preceding claims;

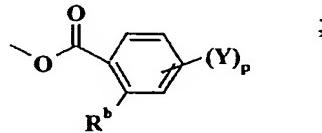
30     with a carboxylic acid derivative of the general formula (III)



in which :

35     - Y, p and R<sup>b</sup> are as defined in any of the preceding claims ; and

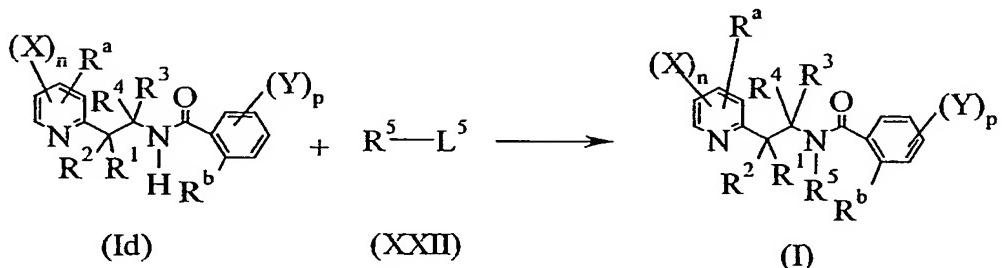
- L<sup>2</sup> is a leaving group chosen as being a halogen atom, a hydroxyl group, -OR<sup>6</sup>, -OCOR<sup>6</sup>, R<sup>6</sup> being a C<sub>1</sub>-C<sub>6</sub> alkyl, a C<sub>1</sub>-C<sub>6</sub> haloalkyl, a benzyl, 4-methoxybenzyl, pentafluorophenyl or a group of formula  $\begin{array}{c} \text{O} \\ \parallel \\ \text{---} \end{array}$ ;



5

in the presence of a catalyst and, if  $L^2$  is a hydroxyl group, in the presence of a condensing agent.

18. A process according to claim 17, characterised in that R<sup>5</sup> is a hydrogen atom  
10 and that the process is completed by a further step according to the following  
reaction scheme :



in which : -  $R^1, R^2, R^3, R^4, R^a, R^b, X, Y, n$  and  $p$  are as defined in any of the claims 1 to 15;

15 -  $L^5$  is a leaving group chosen as being a halogen atom, a 4-methyl phenylsulfonyloxy or a methylsulfonyloxy; comprising the reaction of a compound of general formula (Id) with a compound of general formula (XXII) to provide a compound of general formula (I).

20 **19.** A fungicidal composition comprising an effective amount of a compound according to any of the claims 1 to 16 and an agriculturally acceptable support.

20. A method for preventively or curatively combating the phytopathogenic fungi  
of crops, characterised in that an effective and non-phytotoxic amount of a  
composition according to claim 19 is applied to the plant seeds or to the plant leaves  
and/or to the fruits of the plants or to the soil in which the plants are growing or in  
which it is desired to grow them.